

IN THE CLAIMS:

Although not amended herein, the claims are presented for the convenience of the Examiner.

1. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment comprising:

a body having an end face that opposes an object being conveyed, and at least one concave opening formed in the end face and surrounded by a cylindrical inner side wall;

at least one fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner sidewall so as to cause a swirl of fluid within the concave opening, the at least one spout being formed on the cylindrical inner sidewall;

a centering guide; and

a centering mechanism provided at the body to move the centering guide in a direction towards the object to cause the centering guide to control a lateral movement of the object.

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8. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment comprising:

a body having an end face that opposes an object being conveyed, and at least one concave opening formed in the end face and surrounded by a cylindrical inner side wall;

at least one fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner sidewall so as to cause a swirl of fluid within the concave opening, the at least one spout being formed on the cylindrical inner sidewall;

a centering guide; and

a centering mechanism provided at the body to adjust the centering guide to cause the centering guide to control a lateral movement of the object, wherein the centering mechanism comprises:

a rotatable disk; and

at least one arm linking the centering guide to the rotatable disk such that rotation of the rotatable disk changes a radial distance of the centering guide from the center of the non-

contacting conveyance equipment.

9. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment according to claim 8, wherein the centering mechanism is pneumatically driven.

10. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment to convey an object comprising:

a base;

a centering guide;

a plurality of fluid swirl formation objects which are provided at the base; and

a centering mechanism which is provided at the base and moves the centering guide in a direction towards the object to cause the centering guide to control a lateral movement of the object being conveyed,

wherein each of the plurality of fluid swirl formation objects comprises:

a body having an end face that opposes the object conveyed, and a concave opening formed in the end face and surrounded by a cylindrical inner side wall, and

at least one fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner side wall so as to cause a swirl of fluid within the concave opening, the at least one spout being formed on the cylindrical inner side wall.

11. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment according to claim 10, wherein fluid swirls clockwise in at least one of the plurality of fluid swirl formation objects, and fluid swirls counter clockwise in at least one of the plurality of fluid swirl formation objects.

12. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment according to claim 10, wherein the base is surrounded with a peripheral edge to block a flow of fluid from the base.

13. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment according to claim 12, wherein the peripheral edge has a stepped shape.

14. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment

according to claim 10, further comprising at least one fluid discharge passage provided in the base to expel fluid supplied through the at least one spout of the plurality of fluid swirl formation objects.

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31. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment to convey an object comprising:

- a base;

- a centering guide;

- a plurality of fluid swirl formation objects which are provided at the base; and

- a centering mechanism which is provided at the base and adjusts the centering guide in a direction towards the object to cause the centering guide to control a lateral movement of the object being conveyed,

- wherein each of the plurality of fluid swirl formation objects comprises:

- a body having an end face that opposes the object conveyed, and a concave opening formed in the end face and surrounded by a cylindrical inner side wall, and

- at least one fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner side wall so as to cause a swirl of fluid within the concave opening, the at least one spout being formed on the cylindrical inner side wall;

- wherein the centering mechanism comprises:

- a rotatable disk; and

- at least one arm linking the centering guide to the rotatable disk such that rotation of the rotatable disk changes a radial distance of the centering guide from the center of the non-contacting conveyance equipment.

32. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment according to claim 31, wherein the centering mechanism is pneumatically driven.

33-37. (CANCELLED)

38. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment according to claim 1, wherein

the at least one spout further comprises plural pairs of spouts, and
each of the plural pairs of spouts is formed on the cylindrical inner side wall symmetrically
to a central axis of the concave opening.

39. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment
according to claim 1, wherein the end face comprises a chamfered edge.

40. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment
according to claim 1, wherein the concave opening is in a tapered shape.

41. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment
according to claim 10, wherein
the at least one spout further comprises plural pairs of spouts, and
each of the plural pairs of spouts is formed on the cylindrical inner side wall symmetrically
to a central axis of the concave opening.

42. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment
according to claim 10, wherein the end face comprises a chamfered edge.

43. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment
according to claim 10, wherein the concave opening is in a tapered shape.

44. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment
according to claim 10, wherein the plurality of fluid swirl formation objects are provided at the
base in such a way that each of the plurality of fluid swirl formation objects extends from the
base.

45. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment
comprising:
a hole-shaped concave opening having a continuous walled inner peripheral surface;
an end face that opposes an object to be conveyed, the end face being formed in the
concave opening;
a fluid passageway comprising a spout facing the inside of the concave opening, to
supply fluid to the inner peripheral surface of the concave opening so as to cause a swirl of fluid

within the concave opening; and

a centering guide to maintain the object to be conveyed such that the object opposes the end face, wherein

the non-contacting conveyance equipment has an outer periphery,

the centering guide comprises at least three centering protrusions provided around the outer periphery,

the centering protrusions are radially displaced from a center of the non-contacting conveyance equipment, and

the non-contacting conveyance equipment further comprises a centering mechanism to vary the radial distance of the centering protrusions from the center of the non-contacting conveyance equipment.

46. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment according to claim 45, wherein the centering mechanism comprises:

a rotatable disk; and

arms linking each centering protrusion to the rotatable disk such that rotation of the rotatable disk changes the radial distance of the centering protrusions from the center of the non-contacting conveyance equipment.

47. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment according to claim 46, wherein the centering mechanism is pneumatically driven.

48. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment comprising:

a hole-shaped concave opening having a continuous walled inner peripheral surface;

an end face that opposes an object to be conveyed, the end face being formed in the concave opening;

a fluid passageway comprising a spout facing the inside of the concave opening, to supply fluid to the inner peripheral surface of the concave opening so as to cause a swirl of fluid within the concave opening;

a base with a plurality of concave openings provided on the base, each concave opening having an end face formed therein and a fluid passageway comprising a spout facing the inside thereof,

wherein the base is surrounded with a peripheral edge to block a flow of fluid off the base

and the peripheral edge has a stepped shape;

a centering guide; and

a centering mechanism to move the centering guide so that the centering guide controls a lateral movement of the object.

49. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment comprising:

a hole-shaped concave opening having a continuous walled inner peripheral surface;

an end face that opposes an object to be conveyed, the end face being formed in the concave opening;

a fluid passageway comprising a spout facing the inside of the concave opening, to supply fluid to the inner peripheral surface of the concave opening so as to cause a swirl of fluid within the concave opening;

a base with a plurality of concave openings provided on the base, each concave opening having an end face formed therein and a fluid passageway comprising a spout facing the inside thereof;

at least one fluid discharge passage provided in the base to eliminate fluid supplied through the spouts;

a centering guide; and

a centering mechanism to move the centering guide so that the centering guide controls a lateral movement of the object.

50. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment comprising:

a hole-shaped concave opening having a continuous walled inner peripheral surface;

an end face that opposes an object to be conveyed, the end face being formed in the concave opening;

a fluid passageway comprising a spout facing the inside of the concave opening, the fluid passageway ending at an opening through the inner peripheral surface, to supply fluid to the inner peripheral surface of the concave opening so as to cause a swirl of fluid within the concave opening; and

a centering guide to maintain the object to be conveyed such that the object opposes the end face, wherein

the non-contacting conveyance equipment has an outer periphery,

the centering guide comprises at least three centering protrusions provided around the outer periphery,

the centering protrusions are radially displaced from a center of the non-contacting conveyance equipment, and

the non-contacting conveyance equipment further comprises a centering mechanism to vary the radial distance of the centering protrusions from the center of the non-contacting conveyance equipment.

51. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment according to claim 50, wherein the centering mechanism comprises:

a rotatable disk; and

arms linking each centering protrusion to the rotatable disk such that rotation of the rotatable disk changes the radial distance of the centering protrusions from the center of the non-contacting conveyance equipment.

52. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment according to claim 51, wherein the centering mechanism is pneumatically driven.

53. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment comprising:

a hole-shaped concave opening having a continuous walled inner peripheral surface;

an end face that opposes an object to be conveyed, the end face being formed in the concave opening;

a fluid passageway comprising a spout facing the inside of the concave opening, the fluid passageway ending at an opening through the inner peripheral surface, to supply fluid to the inner peripheral surface of the concave opening so as to cause a swirl of fluid within the concave opening;

a base with a plurality of concave openings are provided on the base, each concave opening having an end face formed therein and a fluid passageway comprising a spout facing the inside thereof,

wherein the base is surrounded with a peripheral edge to block a flow of fluid off the base and the peripheral edge has a stepped shape;

a centering guide; and

a centering mechanism to move the centering guide so that the centering guide controls

a lateral movement of the object.

54. (PREVIOUSLY PRESENTED) Non-contacting conveyance equipment comprising:

- a hole-shaped concave opening having a continuous walled inner peripheral surface;
- an end face that opposes an object to be conveyed, the end face being formed in the concave opening;

- a fluid passageway comprising a spout facing the inside of the concave opening, the fluid passageway ending at an opening through the inner peripheral surface, to supply fluid to the inner peripheral surface of the concave opening so as to cause a swirl of fluid within the concave opening;

- a base with a plurality of concave openings are provided on the base, each concave opening having an end face formed therein and a fluid passageway comprising a spout facing the inside thereof;

- at least one fluid discharge passage provided in the base to eliminate fluid supplied through the spouts;

- a centering guide; and

- a centering mechanism to move the centering guide so that the centering guide controls a lateral movement of the object.

55-58. (CANCELLED)

59. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment to convey an object comprising:

- a base, wherein the base comprises a base part and first and second arm parts which branch from the base in a prong arrangement; and

- a plurality of fluid swirl formation objects which are provided at the first and second arm parts, wherein:

- each of the plurality of fluid swirl formation objects comprises:

- a body having an end face that opposes the object, and a concave opening formed in the end face and surrounded by a cylindrical inner side wall, and

at least one fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner side wall so as to cause a swirl of the fluid within the concave opening, the at least one spout being formed on the cylindrical inner side wall,

among the plurality of fluid swirl formation objects provided at the first and second arm parts, the fluid swirls in a first direction in the fluid swirl formation objects provided in at the first arm part, and the fluid swirls in a second direction opposite to the first direction in the fluid swirl formation objects provided in the second arm part, and

the plurality of fluid swirl formation objects extending from respective surfaces of the first and second arm parts such that the respective end faces are at different levels from the respective surfaces of the first and second arm parts.

60. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment comprising:

a body having an end face that opposes an object being conveyed, and at least one concave opening formed in the end face and surrounded by a cylindrical inner side wall;

at least one fluid passageway having at least one spout to introduce fluid into an inner space of the concave opening in one circumferential direction of the cylindrical inner sidewall so as to cause a swirl of fluid within the concave opening, the at least one spout being formed on the cylindrical inner sidewall;

a centering guide; and

a centering mechanism provided at the body to adjust the centering guide to cause the centering guide to control a lateral movement of the object, wherein the centering mechanism moves the centering guide.

61. (PREVIOUSLY PRESENTED) A non-contacting conveyance equipment according to claim 60, wherein the centering mechanism moves the centering guide in a lateral direction.